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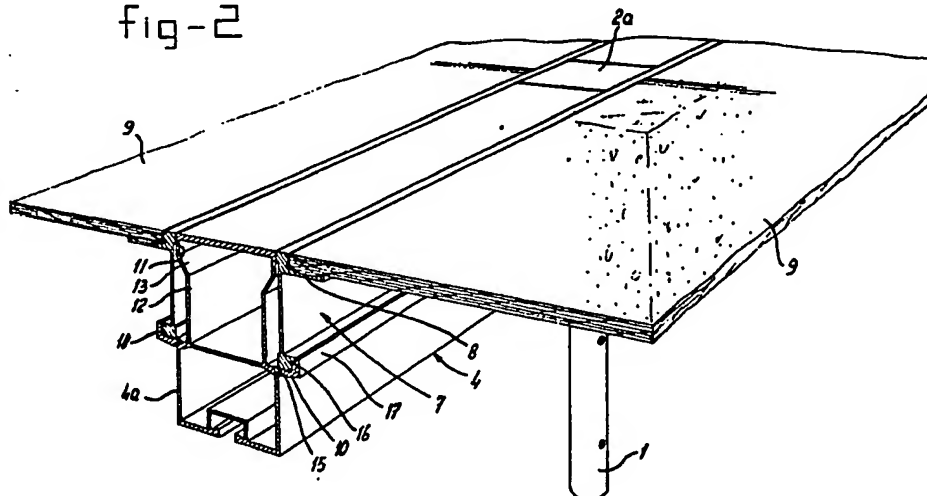
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54 Floor shuttering system for erecting the formwork of a concrete floor.

57 Floor shuttering system for erecting the formwork of a concrete floor, comprising two or more parallel, spaced rows of spaced struts 1. Fitted on each of said struts is a supporting head 2 with a flat top surface 2a and with laterally projecting supporting elements 3 to support tubular girders 4. These girders are provided with a flat-top surface and with side flanges 10 placed some distance below them for supporting the frame 7 of panels 6. The laterally projecting supporting elements 3 of the supporting heads 2 have a lockable high position in which the

top faces of the panels 6 lie in line with the top surfaces 2a of the supporting heads 2 and surfaces of the girders 4 above them. In order to prevent cement deposit on the side flanges and side walls of the tubular girders and on the side walls of the panel frames, the tubular girders have a relatively broad part 11 on the top side and a narrow part 12 extending to the side flanges 10. The prevention of cement deposit through easier flowing away of liquid is considerably improved if the side flanges 10 of the girders 4 have liquid drainage holes 15.

fig-2



# Floor shuttering system for erecting the formwork of a concrete floor.

The invention relates to a floor shuttering system for erecting the formwork of a concrete floor, comprising at least two parallel, spaced rows of spaced struts, and on each of said struts a supporting head with a flat top surface and with laterally projecting supporting elements to support tubular girders which are provided with a flat top surface and with side flanges placed some distance below them for supporting the frame of panels, the laterally projecting supporting elements of the supporting heads having a lockable high position and a low position, in which high position the top faces of the panels lie in line with the top surfaces of the supporting heads and with the top surfaces of the girders.

Such a system is being marketed by Applicants under the name of the Alumatab Valkop system.

Due to the fact that the supporting elements of the supporting heads can be lowered, it is possible to strip the formwork of girders and panels already two to three days after pouring the concrete, while the floor remains supported by the flat top surfaces of the supporting heads mounted on the struts. The relatively expensive girders and panels are subsequently re-usable. There is thus no need to wait until the poured floor is completely set, which can take several weeks.

It was found in practice that the liquid running away out of the concrete mixture and the water sprayed onto the concrete mixture lead to cement deposit on the side flanges and side walls of the tubular girder and on the side walls of the panel frames. The removal of this is time-consuming and expensive.

The object of the invention is to eliminate this disadvantage.

According to the invention, the tubular girders to this end have a relatively broad part at the top side and a narrow part extending to the side flanges.

There is space between the narrow part of the tubular girders and the frame parts of the panels resting on the side flanges, by means of which the liquid flows away more easily and the deposit of cement occurs less quickly.

This effect is considerably improved if liquid drainage holes are provided in the side flanges of the girders.

By making provision at the bottom ends of the frame parts resting on the side flanges of the girders for a bevel or recess which is such that it forms a space between the raised edge of the side flanges of the girder, the top face of said side flanges and the side surface of the frame parts, it is

ensured that liquid can also flow away easily via the above-mentioned space to the outside of the frame parts. It will also be possible to connect this space to the environment by means of liquid drainage holes.

Both the tubular girders and the frames of the panels are preferably made of an aluminium alloy.

Providing the top face of the side walls of an above-mentioned broad and narrow part of the tubular girders with a coating means that adhesion of cement can be prevented.

The invention also relates to a tubular girder intended for the above-mentioned system, said girder having a flat top surface and side flanges placed some distance below it. According to the invention, the girder has a relatively broad part on the top side and a narrow part extending up to the side flanges. Liquid drainage holes will generally be disposed in the side flanges.

The invention will now be explained in greater detail with reference to the figures, in which an example of an embodiment is shown.

Fig. 1 shows, in perspective and in disassembled form, the floor shuttering system to which the invention relates.

Fig. 2 shows a perspective view of a girder with a panel of the system according to Fig. 1 supported thereon.

Fig. 3 shows a cross-section of the girder and of a panel frame.

The shuttering system shown is intended for erecting the formwork of concrete floors. It comprises a large number of so-called screw struts 1, which are placed in parallel rows spaced apart. A supporting head 2 with a flat top surface 2a is fitted on each of the struts 1. A supporting plate 3, to which girders 4 can be coupled, is connected to the supporting heads. The supporting plate 3 can be locked, by means of a clamping plate 5 with wedge-shaped opening, in a position in which the top face of a coupled girder lies in line with the flat top surface 2a of the supporting heads 2. Tapping the clamping plate 5 loose will cause the supporting plate 3 with the coupled girders 4 to drop a certain distance.

The girders 4 are used to support panels 6 which are made up of a frame 7 and plywood sheets 9 fitted therein on a flange 8. When the supporting plates 3 and the girders 4 are lowered, the panels 6 resting on the girders 4 will also move downwards.

The continuous shuttering face on which the concrete mixture is poured to form a concrete floor is formed by the top faces of the panels 6, the top faces 2a of the supporting heads 2 and the top

faces of the girders 4. In certain cases the girders 4 can be connected by means of sleepers. In that case the top face of the sleepers also forms part of the pouring face.

The way in which the girders 4 of the supporting elements 3 are connected to the supporting heads 2 makes it possible to lower the girders 4 with panels 6 some distance and remove them two to three days after the concrete is poured on the floor. For the lowering, all that is needed is to tap the clamping plates 5 to loosen them.

After removal of the girders 4 and the panels 6 under the partially set concrete floor, said floor rests on the top surfaces 2a of the supporting heads 2. The concrete floor is not sufficiently hardened for the struts 1 with supporting heads 3 to be removed without risk until two to three weeks later. The expensive panels 6 and the girders 4 can be re-used several times in that interim period.

The girders 4 and the frame parts 7 of the panels 6 are made by extrusion from a strong aluminium alloy.

The girders are provided with projecting side flanges 10 on which the frames 7 of the panels rest. A tubular section 4a, which can be used for the suspension of scaffolding and the like, is located below the side flanges 10.

According to the invention, the part of the girders 7 above the flanges 10 has two parts: a relatively broad top part 11 and a relatively narrow bottom part 12, which are connected to each other by a transition part 13. A space 14 is created between the frame 7 and the narrow part 12. The bottom of said space 14 is connected to the environment by means of slanting bores 15. This means that water coming from the poured concrete (including the water sprayed thereon), which seeps away through the gap between the girders 4 and the panel frames 7, can flow away easily. As a result of this, less cement deposit occurs on the faces of the girders and the frames facing each other. Less time need be spent on the removal of this deposit.

The above-mentioned effect can be reinforced by providing the top face and the side faces of the girders 4 and the side faces of the frames 7 with a coating which prevents cement deposit.

The profile of the frames 7 is provided on the bottom side with a thickened part 16 which rests on the flange 10 which has a raised edge 17. This thickened part has a bevelled side face 18 to form a space 19. This space can also in turn be provided with liquid drainage holes to prevent cement deposit.

1. Floor shuttering system for erecting the formwork of a concrete floor, comprising at least two parallel, spaced rows of spaced struts (1), on each of said struts a supporting head (2) with a flat top surface (2a) and with laterally projecting supporting elements (3) to support tubular girders (4) which are provided with a flat top surface and with side flanges (10) placed some distance below them for supporting the frame (7) of panels (6), the laterally projecting supporting elements (3) of the supporting heads (2) having a lockable high position and a low position, in which high position the top faces of the panels (6) lie in line with the top surfaces (2a) of the supporting heads (2) and with the top surfaces of the girders (4), characterized in that the tubular girders have a relatively broad part (11) at the top side and a narrow part (12) extending to the side flanges (10).

2. Floor shuttering system according to Claim 1, characterized in that liquid drainage holes (15) are fitted in the side flanges (10) of the girders (4).

3. Floor shuttering system according to Claim 1 or 2, characterized in that the frame parts (7) resting on the side flanges of the girders are provided at their bottom ends with a bevel (18) or recess which forms a space (19) between a raised edge (17) of the side flanges (10) of the girder (4), the top face of said side flanges (10) and the side surface of the frame parts (7).

4. Floor shuttering system according to one of the preceding claims, characterized in that the tubular girders (4) are made of an aluminium alloy.

5. Floor shuttering system according to one of the preceding claims, characterized in that the frames (7) of the panels (6) are made of an aluminium alloy.

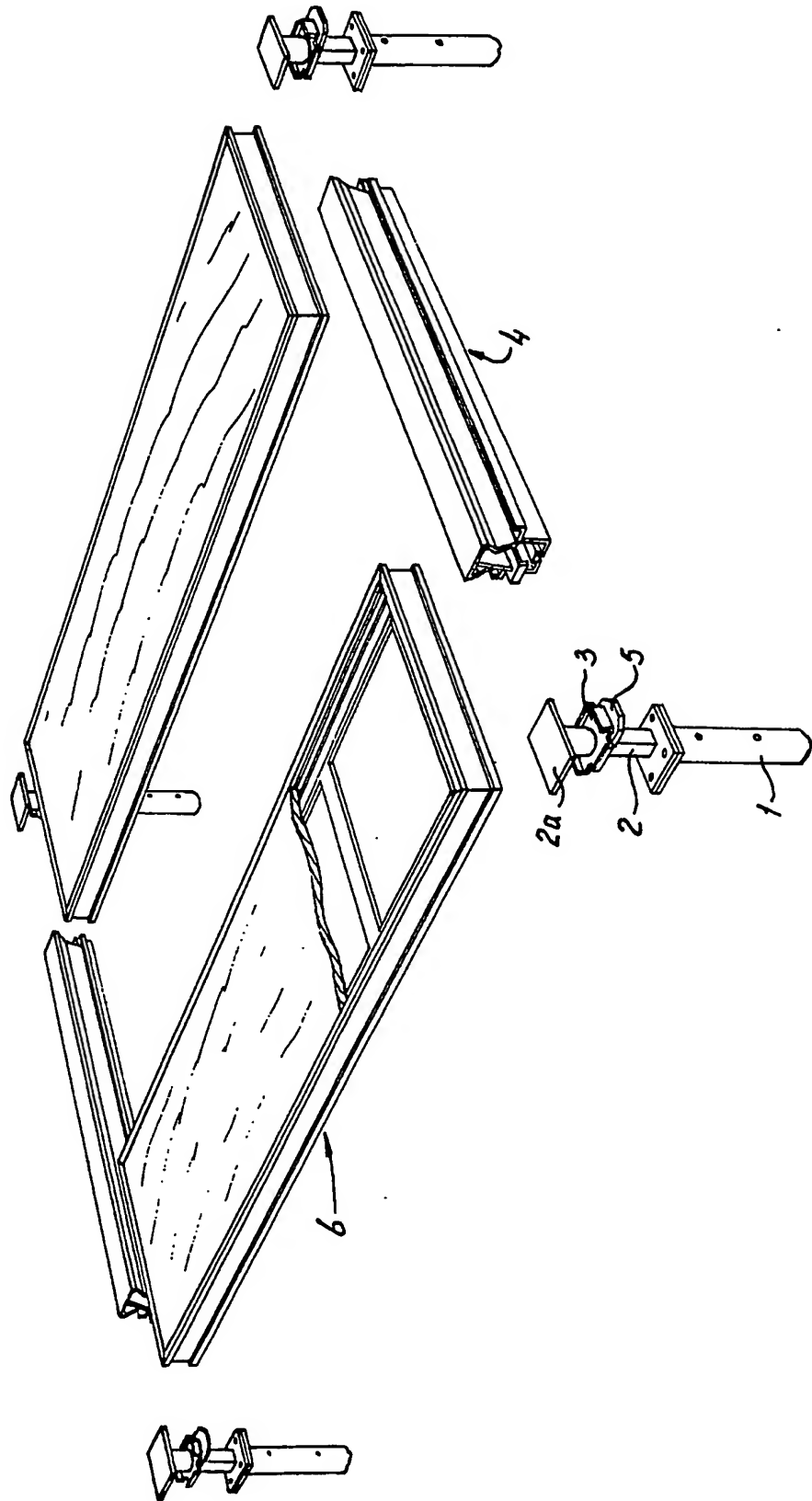
6. Floor shuttering system according to one of the preceding claims, characterized in that the top surface of the side walls of the above-mentioned broad and narrow part of the tubular girders (4) is provided with a coating which prevents adhesion of cement.

7. Tubular girder intended for the floor shuttering system according to one of the preceding claims, said girder having a flat top surface and side flanges (10) placed some distance below it, characterized in that the girder has a relatively broad part (11) at the top side and a narrow part (12) extending to the side flanges.

8. Tubular girder according to Claim 7, characterized in that liquid drainage holes (15) are provided in the side flanges (10).

## Claims

fig-1



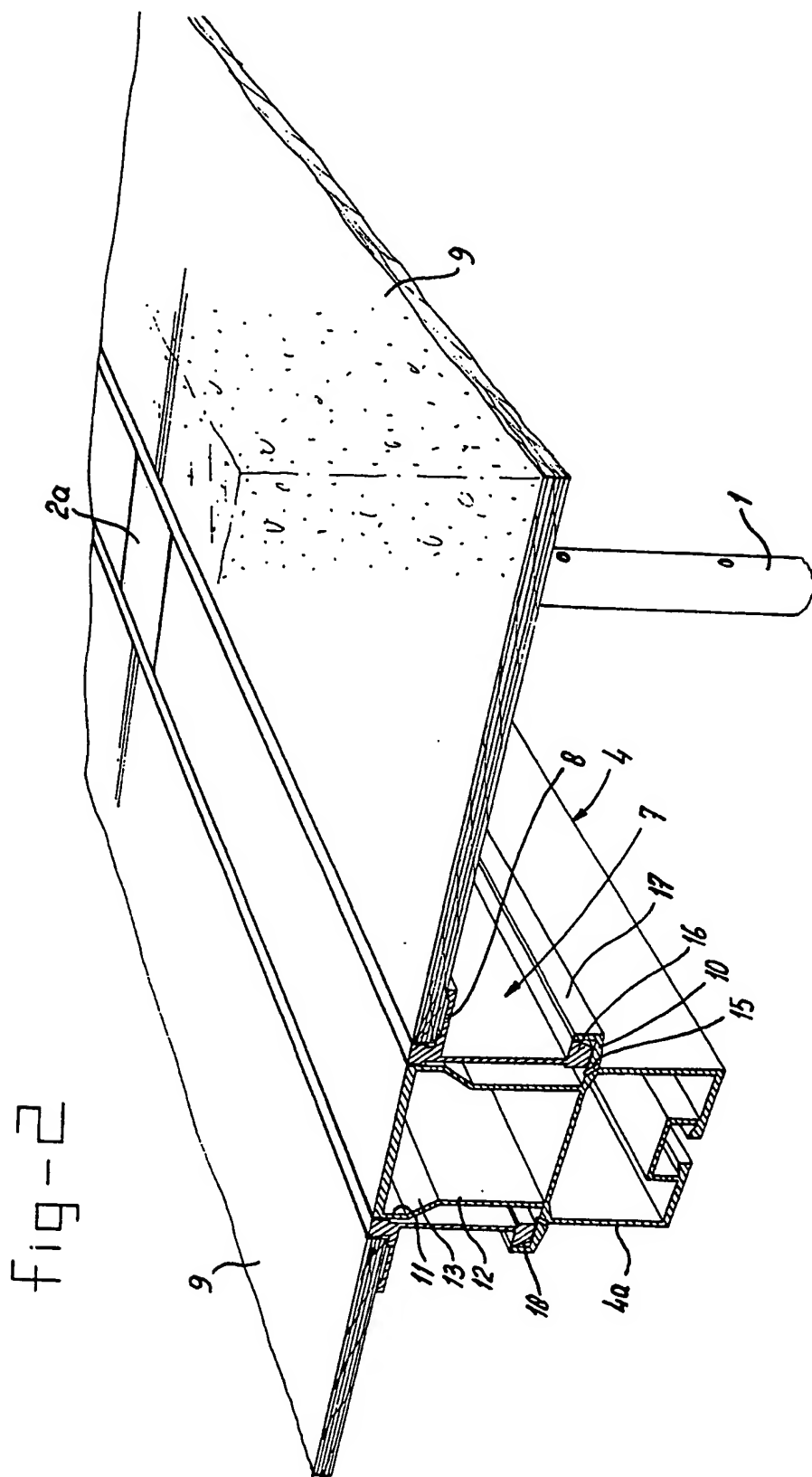
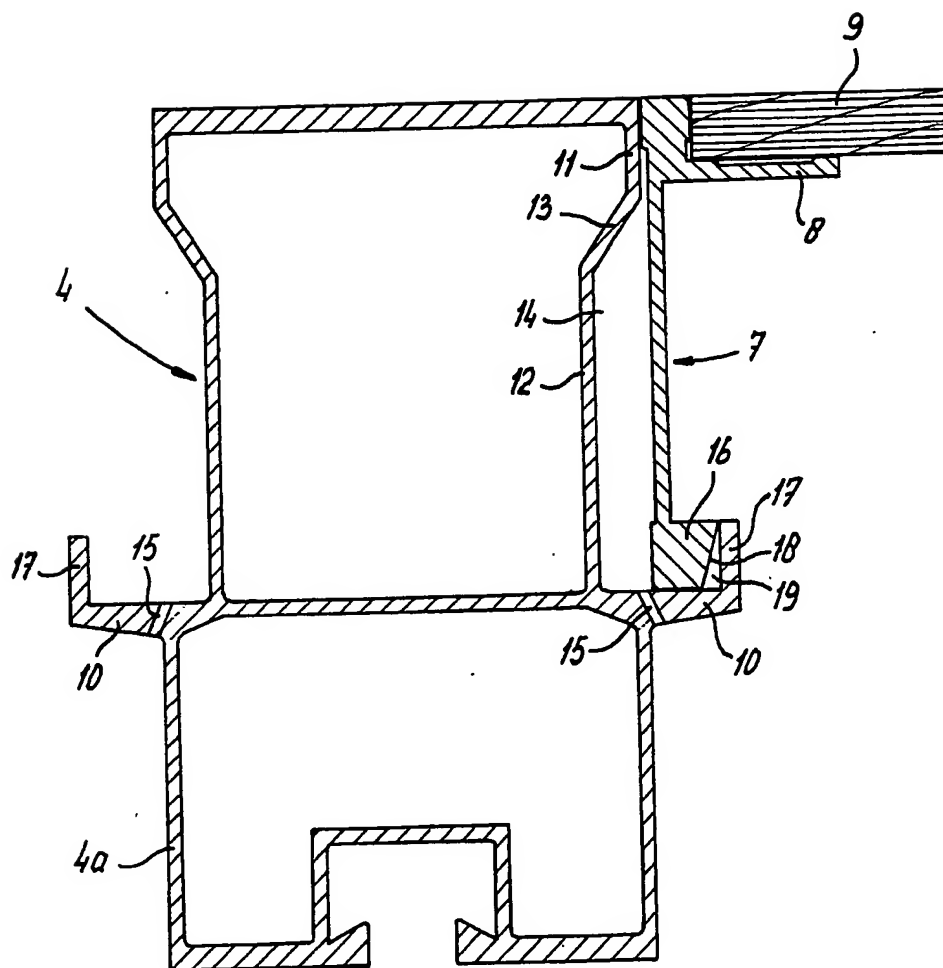


fig-3





European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number

EP 90 20 0050

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	FR-A-2 475 099 (PERI-WERK ARTUR SCHWORER) ----		E 04 G 11/48 E 04 G 11/50
A	FR-A-2 247 596 (C. EVANS & SONS LTD) ----		
A	EP-A-0 139 777 (ROBERTSON BAUELEMENTE) ----		
A	US-A-3 992 118 (SLEGERS) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E 04 G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 03-05-1990	Examiner VIJVERMAN W.C.
<b>CATEGORY OF CITED DOCUMENTS</b>			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	